

Remarks

The Office Action of May 7, 2004 has been received and its contents carefully reviewed. Applicants would like to thank the examiner for conducting the telephonic interview on August 26, 2004. During the interview, the definition of electrical contact and the U.S. Patent No. 4,188,419 ("the Detert reference") were discussed. Claims 1, 4 – 15, 17, and 18 are currently pending in the application.

The present invention is directed to an electrical connector comprising a plurality of contacts mounted on a substrate. The substrate and contacts are heated using induction heating. In this manner the contacts can be differentially heated and heated in a manner that will not negatively affect the substrate.

Claims 1 and 13 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,188,419 to Detert et al. The rejection is respectfully traversed.

In making the rejection, the Office Action states that the term "electrical contact" is given "its broadest reasonable structural interpretation, i.e. will consider this term to refer to a material or portion of a material that conducts electricity relatively easily, such as a metallic material. No particular physical configuration is implied by this term." While Applicants agree that terms are given their broadest reasonable interpretation, the key word is reasonable. In order to make a reasonable interpretation, it is necessary that one consider the context in which the term is being used. As is clearly described in the specification and the claims, the present invention is placed in the context of electrical devices/components which are mated together to make circuit connections. As defined in the IEEE Standard Dictionary of Electrical and Electronics Terms (1984, 3rd Edition) a contact is "a conducting part that co-acts with another conducting part to make or break a circuit." (copy enclosed) Clearly an electrical contact, in the context of the present application and claims has a more specific meaning than is given in the present Office Action.

Specifically, an electrical contact is more than a material or portion of a material that conducts electricity relatively easily. It must enable mating and unmating to make or break a circuit.

It is clear, in light of the foregoing that the Detert reference is not directed to the art of electrical contacts and therefore can not anticipate the present invention.

However, assuming for the sake of argument that the Detert reference could be interpreted (no matter how unreasonable) as being directed to an electrical contact, it still does not teach, disclose or suggest the present invention as set forth in the claims. Specifically, the Detert reference is directed "to a process for preventing crack formation in the base material underneath a weld during a stress relief heat treatment or annealing of weld claddings and connecting welds . . . by subjecting the regions adjacent to and extending up to a maximum of about 10 mm from the welding zone to a local heating before the stress relief step." Detert at col. 2, lines 56-63, emphasis added.

First, it should be noted that the Office Action equates the weld cladding material 16 (made up of welds 18) to the electrical contacts of the present application. Furthermore, the Office Action states that "the base material (area 14 in Detert Figure 2) is unaffected by the heating." This statement is clearly contrary to the Detert reference disclosure. First, the Detert reference describes a weld-plated plate 12 comprising a base material 14 and a weld-plated cladding layer 16 formed by a plurality of adjacent welding beads 18. The Detert reference describes its invention as achieved by "The local heating of the present invention is a heating which refers only to the melt zone, and to a penetration depth up to no more than about 10 mm into the base material." Detert at col. 2, lines 63-66. The Detert reference goes on to state, "the heat affected areas 20 formed by the welding are subjected to a local heating to a depth of no more than 10 mm. This depth of local heating is measured from the transition point 22 between the base material 14 and the welding bead 18 and thus defines the regions adjacent to and extending up to no more than 10 mm from the welding

zone. This depth is shown in FIG. 2 by dashed line 24 and dotted line 26 and which define a heat influence zone 24' and 26' in the heat-affected areas 20 of welding beads 18." Detert at col. 3, lines 57-67. This clearly establishes that the base material 14 is affected by the heating. In fact, it is the base material where the differentiation in heating takes place (as established by the "10 mm" limitations described in the Detert reference) in contrast to the present invention wherein the heating differentiation takes places in the electrical contacts (which would be the welding beads 18 in the Detert reference).

It is very clear that the Detert reference teaches differentially heating a base material and not the cladding material which has been inappropriately equated to an electrical contact. As such, the Detert reference does not teach or suggest "to heat different first and second portions of the electrical contacts by different first and second amounts" as set forth in claim 3. Furthermore, the Detert reference clearly teaches away from claim 13 which recites "heating said contacts by different first and second amounts without induction heating said substrate."

It is respectfully requested that the outstanding rejections be reconsidered and withdrawn and that the presently pending claims be allowed.

If the examiner has any questions regarding the presently pending claims which could be easily resolved by a telephone conference, the examiner is respectfully requested to contact the Applicants' representative at the below listed number.

Respectfully submitted,

G. Chou et al.
Applicants

By:


Michael Aronoff
Registration No. 37,770
Attorney for Applicants
Phone: (302) 633-2770
Facsimile: (302) 633-2776

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IEEE Standard Dictionary of Electrical and Electronics Terms

Third Edition.

- elapsed between writing and threshold voltage measurement. 386
- constant-voltage transformer (power and distribution transformer).** A transformer that maintains an approximately constant voltage ratio over the range from zero to rated output. 53
- constitutive relations (radio wave propagation).** Constraints imposed by the medium on the relationships between electric and magnetic field vectors and their respective flux density vectors. 146
- constraints (1).** Limits on the ranges of variables or system parameters because of physical or system requirements. *See: system.* 209
- (2) (control system).** A restriction placed on the control signal, control law, or state variables. *See: control system.* 329
- construction diagram (industrial control).** A diagram that shows the physical arrangement of parts, such as wiring, buses, resistor units, etc. *Example:* A diagram showing the arrangement of grids and terminals in a grid-type resistor. 210, 206
- construction test (nuclear power, generating station).** A construction test is defined as a test to verify proper installation and operation of individual components in a system prior to operation of the system as an entity. 354
- contact (power switchgear).** (1)(general) A conducting part that co-acts with another conducting part to make or break a circuit. (2)(of a relay) A conducting part that acts with another conducting part to make or break a circuit. 103, 202, 127, 27
- contact area (1) (photoelectric converter).** The area of ohmic contact provided on either the *p* or *n* faces of a photoelectric converter for electric circuit connections. *See: semiconductor.* 186
- (2) (solar cells).** That area of ohmic contact provided on either the *p* or *n* surface of a solar cell for electric circuit connections. 113
- contact bounce (sequential events recording systems).** The undesired intermittent closure of open contacts or opening of closed contacts. *Note:* It may occur either when the contact device is operated or released, and is solely a characteristic of the contact device. 48
- contact chatter, relay.** *See: relay contact chatter.*
- contact clip (of a mechanical switching device) (power switchgear).** The clip that the blade enters or embraces. 103
- contact clips.** *See: fuse clips.* 103
- contact conductor (1) (electric traction).** The part of the distribution system other than the track rails, that is in immediate electric contact with current collectors of the cars or locomotives. *See: contact wire (trolley wire); trolley; underground collector or plow.* *See: multiple-unit control.* 1
- (2) (contact electrode) (electrochemistry).** A device to lead electric current into or out of a molten or solid metal or alloy that itself serves as the active electrode in the cell. *See: fused electrolyte.* 328
- contact converter (as applied to relaying) (power switchgear).** A buffer element used to produce a prescribed output as the result of the opening or closing of a contact. 103
- contact corrosion.** *See: crevice corrosion.*
- contact current-carrying rating of a relay (power switchgear).** The current that can be carried continuously or for stated periodic intervals without impairment of the contact structure or interrupting capability. 60, 127, 103
- contact current-closing rating of a relay (power switchgear).** The current that the device can close successfully with prescribed operating duty and circuit conditions without significant impairment of the contact structure. 103
- contact flange (waveguide components).** A flat flange used in conjunction with another flat flange to provide a contact joint. 166
- contact follow-up (relays, switchgear, and industrial control).** The distance between the position one contact face would assume, were it not blocked by the second (mating) contact, and the position the second contact removed, when the actuating member is fixed in its final contact-closed position. *See: electric controller.* *See: initial contact pressure.* 302, 225, 206
- contact gap (break) (industrial control).** The final length of the isolating distance of a contact in the open position. *See: contactor.* 244, 206
- contact high recombination rate (semiconductor).** A semiconductor-semiconductor or metal-semiconductor contact at which thermal equilibrium charge-carrier concentrations are maintained substantially independent of current density. *See: semiconductor; semiconductor device.* 210, 245, 66
- contact interrupting rating of a relay (power switchgear).** The current that the device can interrupt successfully with prescribed operating duty and circuit conditions without significant impairment of the contact structure. 127, 103
- contact joint (contact coupling) (waveguide components).** A connection designed for essentially complete transfer of power between two waveguides by means of metallic contact between the inner walls of the waveguides. It typically consists of two contact flanges. 166
- contactless vibrating bell.** A vibrating bell whose continuous operation depends upon application of alternating-current power without circuit-interrupting contacts. *See: protective signaling.* 328
- contact making clock.** *See: demand meter (contact making clock).* 212
- contact-making clock demand meter (metering).** A device designed to close momentarily an electric circuit to a demand meter at periodic intervals. 210
- contact mechanism (demand meter).** A device for attachment to an electricity meter or to a demand-totalizing relay for the purpose of providing electric impulses for transmission to a demand meter relay. *See: demand meter.* 328
- contact nomenclature.** *See: relay terms.*
- contact opening time (of a relay) (power switchgear).** The time a contact remains closed while in process of opening following a specified change of input. 103
- contactor (1) (industrial control) (transformer).** A de-